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10/543,168	02/28/2006	Jun Fujimoto	03450/NGB	5513
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/543,168	FUJIMOTO ET AL.
	Examiner Kevin Wyatt	Art Unit 2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 and 17-23 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-14 and 17-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 July 2005 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>0705</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Numata (Publication No. U.S. 2002/015145 A1).

Regarding claim 1, Numata shows in Fig. 15 a discrimination sensor that optically detects a surface structure of an object by scanning along a surface of the object (BN, i.e., bank note), the discrimination sensor comprising: a light emitting device (LEDs 1-4) that emits sensing light to the surface of the object (BN, i.e., bank note), the sensing light having a sensing area (via light guide plate (11)) being wide in a direction perpendicular to the scanning direction; and a light receiving device (14, i.e., photodiode array) having a light receiving area that receives light generated on the surface structure of the object when the sensing light is emitted, the light receiving area configured to be wide in a direction perpendicular to the scanning direction.

Regarding claim 2, Numata shows in Fig. 15 that the light emitting device and the

light receiving device are integrally provided.

Regarding claim 3, Numata discloses that the light emitting device (LEDs 1-4) individually emits a plurality of sensing light beams having wavelength bands that differ from each other; and wherein the light receiving device receives lights generated on the surface structure of the object independently when the plurality of sensing light beams are individually emitted (paragraph 0039, lines 1-8).

Regarding claim 4, Numata discloses that the light receiving device (14, i.e., photodiode array) sequentially receives lights generated on the surface structure of the object when the plurality of sensing light beams are individually emitted (paragraph 0043).

Regarding claim 5, Numata discloses that the light emitting device (LEDs 1-4) has a plurality of light emitting portions that individually emit sensing light beams respectively, the sensing light beams having wavelength bands that differ from each other (paragraph 0039, lines 1-4); and wherein the light receiving device (14, i.e., photodiode array) receives lights generated on the surface structure of the object (BN, i.e., bank note) independently when the sensing light beams are individually emitted from the plurality of light emitting portions.

Regarding claim 6, Numata shows in Fig. 14, that the light receiving device sequentially receives lights generated on the surface structure of the object when the plurality of sensing light beams are individually emitted from the plurality of light emitting portions (paragraph 0043).

Regarding claim 7, Numata discloses that the plurality of sensing light beams includes a sensing light beam having a wavelength band in a range from substantially 700 nm to substantially 1600 nm (800-1,000nm), and a sensing light beam having a wavelength band in a range from substantially 380 nm to substantially 700 nm (370-630nm).

Regarding claim 8, Numata discloses that the plurality of sensing light beams includes a sensing light beam having a wavelength band in a range from substantially 800 nm to substantially 1000 nm (800-1,000nm), and a sensing light beam having a wavelength band in a range from substantially 550 nm to substantially 650 nm (520-630nm).

Regarding claim 10, Numata discloses the discrimination sensor further comprises a computation/determination unit (20, i.e., control process section) that performs a computation on a discrimination signal outputted from the light receiving device when lights generated on the surface structure of the object is received, and determines whether or not the discrimination signal is within a predetermined tolerance range (performed while determining genuiness/falsehood of bank not (BN))(paragraph 0039, lines 4-8).

4. Claims 11-13, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen (U.S. Patent No. 6,497,179 B1).

Regarding claim 11, Allen shows in Fig. 2A a discrimination sensor that optically detects a surface structure of an object by scanning along a surface of the object, the discrimination sensor comprising: a sensor unit (48) having an optical path opening

widely opened in a direction perpendicular to the scanning direction (provided by additional light sources, col. 3, lines 53-59); a light emitter (42) that is provided in the sensor unit and emits light; a light receiver (48) that is provided in the sensor unit and receives light; and a focusing optical system (44 and 46) that focuses the light emitted from the light emitter towards the optical path opening, and focuses light that is incident into the sensor unit through the optical path opening to the light receiver, wherein the focusing optical system focuses the light emitted from the light emitter towards the optical path opening and onto the surface of the object as a sensing light having a sensing area being wide (with additional light sources) in a direction perpendicular to the scanning direction, and wherein the focusing optical system focuses light generated on the surface structure of the object and is incident into the sensor unit (48) through the optical path opening to the light receiver.

Regarding claim 12, Allen shows in Fig. 2A the focusing optical system (44, 46) and the sensor unit (26, i.e., sensing system) are formed integrally provided.

Regarding claim 13, Allen further discloses the light emitter individually may optionally emit a plurality of sensing light beams having wavelength bands that differ from each other; and wherein the light receiver may optionally receive lights generated on the surface structure of the object independently when the plurality of sensing light beams are individually emitted (col. 3, lines 53-59).

Regarding claim 20, Allen further comprises a computation/determination unit (28, i.e., processor) that performs a computation on a discrimination signal outputted from the light receiver when light generated on the surface structure of the object is

received, and determines whether or not the discrimination signal is within a predetermined tolerance range.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numata (Publication No. U.S. 2004/0125358 A1).

Regarding claim 9, Numata discloses the claimed invention as stated above.

Numata does not disclose that the plurality of sensing light beams include includes a sensing light beams in a band having a wavelength of substantially 940 nm, and a sensing light beam set in a band of: having a wavelength of substantially 640 nm. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum "ranges, or measurements" involves only routine skill in the art. It would have been obvious to one skilled in the art to provide sensing light beams having a wavelength of substantially 640nm or 940nm for the purpose highlighting and displaying surface features mainly visible in red and infrared light.

7. Claims 17-19 and 22-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (U.S. Patent No. 6,497,179 B1).

Regarding claims 17, Allen discloses the claimed invention as stated above.

Allen does not disclose that the plurality of sensing light beams includes a sensing light beam having a wavelength band in a range from substantially 700 nm to substantially 1600 nm, and a sensing light beam having a wavelength band in a range from substantially 380 nm to substantially 700 nm. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum "ranges, or measurements" involves only routine skill in the art. It would have been obvious to one skilled in the art to provide sensing light beams having a wavelength of substantially 700 nm to substantially 1600 nm and from substantially 380 nm to substantially 700 nm. It would have been obvious to one skilled in the art to provide sensing light beams having a wavelength of substantially 700 nm to substantially 1600 nm and from substantially 380 nm to substantially 700 nm for the purpose of obtaining additional information on surface features or characteristics from reflected light mainly detected at certain wavelengths.

Regarding claims 18 and 22, Allen discloses the claimed invention as stated above. Allen does not disclose that the plurality of sensing light beams include a sensing light beam having a wavelength band in a range from substantially 800 nm to substantially 1000 nm, and a sensing light beam having a wavelength band in a range from substantially 550 nm to substantially 650 nm. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum "ranges, or measurements" involves only routine skill in the art. It would have been obvious to one skilled in the art to provide sensing light beams having a wavelength of

substantially 800 nm to substantially 1000 nm and substantially 550 nm to substantially 650 nm for the purpose of obtaining additional information on surface features or characteristics from reflected light mainly detected at certain wavelengths.

Regarding claims 19 and 23, Allen discloses the claimed invention as stated above. Allen does not disclose that the plurality of sensing light beams include includes a sensing light beams in a band having a wavelength of substantially 940 nm, and a sensing light beam set in a band of: having a wavelength of substantially 640 nm. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum "ranges, or measurements" involves only routine skill in the art. It would have been obvious to one skilled in the art to provide sensing light beams having a wavelength of substantially 640nm or 940nm for the purpose of obtaining additional information on surface features or characteristics from reflected light mainly detected at certain wavelengths.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (U.S. Patent No. 6,497,179 B1) in view of Numata (Publication No. U.S. 2004/0125358 A1).

Regarding claim 14, Allen discloses the claimed invention as stated above. Allen does not disclose wherein the light receiver sequentially receives lights generated on the surface structure of the object when the plurality of sensing light beams are individually emitted. Numata discloses a light receiver which sequentially receives lights generated on the surface structure of the object when the plurality of sensing light beams are individually emitted (paragraph 0043, lines 5-15). It would have been

obvious to one skilled in the art to sequentially receive lights generated on a surface structure of an object during light emission of a plurality of sensing light beams such as disclosed in Numata for the purpose of providing monochromic sensing of surface features to improve discrimination of object surface.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (U.S. Patent No. 6,497,179 B1) in view of Schartz (U.S. Patent No. 5,401,977).

Regarding claim 21, Allen discloses the claimed invention as stated above. Allen does not explicitly disclose that a sensor unit and a focusing optical system which includes a transparent material that are integrated with each other, and a light shielding processing is performed on a surface of the sensor unit, other than the optical path opening. Schartz shows in Fig. 5, a sensor unit (measurement apparatus) and a focusing optical system (combination of 47, 37, 39 and 48) which includes a transparent material (the material between plate (31) surfaces) that are integrated with each other, and a light shielding processing (31, i.e., plate) is performed on a surface of the sensor unit, other than the optical path opening. It would have been obvious to one skilled in the art to provide an arrangement which includes a transparent material and a light shielding processing integrated in a sensor unit such as provided in Schartz to the device of Allen for the purpose of providing a means for securing and encasing light emitting, sensing and optical elements.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsuji (U.S. Patent No. 5,591985) discloses a surface state inspecting system including a scanning optical system for scanning a surface to be inspected with a first light and for simultaneously scanning a diffraction grating with a second light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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